Atty. Dkt. No. 2001P14844US

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of modulating or demodulating a communication signal using differential quadrature phase shift keying (DQPSK), the method comprising:

upon receiving an inbound communication signal, demodulating the inbound communication signal by:

obtaining Pi/4 differential quadrature phase shift keying (DQPSK) symbols;

translating the Pi/4 DQPSK symbols into quadrature phase shift keying (QPSK) symbols utilizing the formula

$$S_{QPSK}(t) = (\text{real}(S(t)) + \text{imag}(S(t))) * (\text{real}(S(t-1)) - \text{imag}(S(t-1))),$$

where S(t) is a DQPSK symbol at time t, and $S_{QPSK}(t)$ is a QPSK symbol at time t; and

mapping the QPSK symbols to a pair of bits; and

upon initiating an outbound communication signal, modulating the outbound communication signal by:

obtaining communication bits indicative of the outbound communication signal;

translating the communication bits to three communication bits; and

mapping the translated bits to DQPSK symbols.

2. (Currently Amended) The method of claim 1, wherein ~~the~~ translating the communication bits comprises performing an XOR operation.

3. (Cancelled)

4. (Currently Amended) The method of claim [3] 1, wherein a phase of a first symbol is not known and a phase of a predecessor symbol is known.

5. (Previously Presented) The method of claim 1, wherein mapping the QPSK symbols to a pair of bits comprises utilizing a lookup table to map the QPSK symbols to a pair of bits.

6. (Previously Presented) The method of claim 5, wherein the lookup table includes the following values stored therein:

QPSK Symbol Input	Two Bits Output
Pi/4	00
3 Pi/4	01
-3 Pi/4	10
-Pi/4	11

7. (Previously Presented) The method of claim 1, wherein translating the communication bits to three communication bits comprises providing two variable bits and a hardwired bit to an adder.

8. (Previously Presented) The method of claim 1, wherein the step of mapping the translated bits to DQPSK symbols comprises using a lookup table.

9. (Original) The method of claim 1, wherein modulating does not require a complex multiplication operation.

10. (Currently Amended) A Pi/4 differential quadrature phase shift keying (DQPSK) modem, the modem comprising:

a processing unit; and

a storage device coupled to the processing unit and having stored there information for configuring the processing unit to:

obtain Pi/4 differential quadrature phase shift keying (DQPSK) symbols;

translate the Pi/4 DQPSK symbols into quadrature phase shift keying (QPSK) symbols utilizing the formula

$$S_{QPSK}(t) = (\text{real}(S(t)) + \text{imag}(S(t))) * (\text{real}(S(t-1)) - \text{imag}(S(t-1))),$$

where S(t) is a DQPSK symbol at time t, and $S_{QPSK}(t)$ is a QPSK symbol at time t;

map the QPSK symbols to a pair of bits;

obtain communication bits indicative of the outbound communication signal;

translate the communication bits to three communication bits; and

map the translated bits to DQPSK symbols.

11. (Previously Presented) The modem of claim 10, wherein the translation of the communication bits to three communication bits comprises performing an XOR operation.

12. (Previously Presented) The modem of claim 10, wherein the mapping of QPSK symbols to a pair of bits performed by the processing unit comprises utilizing a lookup table to map the QPSK symbols to a pair of bits.

13. (Cancelled)

14. (Previously Presented) The modem of claim 10, wherein the storage device comprises look up tables having the following values stored therein:

QPSK Symbol Input	Two Bits Output
Pi / 4	00
3 Pi / 4	01
- 3 Pi / 4	10
- Pi / 4	11

and

Bit Combination	Real	Imaginary
000	0	1
001	-0.707	0.707
010	-1	0
011	-0.707	-0.707
100	0	-1
101	0.707	-0.707
110	1	0
111	0.707	0.707

15. (Currently Amended) A system which modulates or demodulates a communication signal using differential quadrature phase shift keying (DQPSK), the system comprising:

means for obtaining Pi/4 differential quadrature phase shift keying (DQPSK) symbols;

means for translating the Pi/4 DQPSK symbols into quadrature phase shift keying (QPSK) symbols utilizing the formula

$S_{OPSK}(t) = (real(S(t)) + imag(S(t))) * (real(S(t-1)) - imag(S(t-1)))$,

where S(t) is a DQPSK symbol at time t, and $S_{OPSK}(t)$ is a QPSK symbol at time t;

means for mapping the QPSK symbols to a pair of bits;

means for obtaining communication bits indicative of the outbound communication signal;

means for translating the communication bits to three communication bits; and

means for mapping the translated bits to DQPSK symbols.

16. (Original) The system of claim 15, wherein the means for translating the communication bits to three communication bits does not involve a complex multiplication operation.

17. (Previously Presented) The system of claim 15, wherein the means for translating the communication bits to three communication bits comprises means for performing an XOR operation.

18. (Cancelled)

19. (Original) The system of claim 18, wherein a phase of a first symbol is not known and a phase of a predecessor symbol is known.

20. (Original) The system of claim 15, wherein the means for mapping the QPSK symbols to a pair of bits comprises means for utilizing a lookup table to map the QPSK symbols to a pair of bits.

21. (Currently Amended) A method of modulation using differential quadrature phase shift keying (DQPSK), the method comprising:

obtaining two communication bits indicative of the outbound communication signal;

translating the two communication bits to three communication bits; and

mapping the translated bits to DQPSK symbols ~~wherein each DQPSK symbol is represented by a single in-phase component and a single quadrature-phase component~~ using a look up table wherein the look up table includes the following values stored therein:

Bit Combination	Real	Imaginary
000	0	1
001	-0.707	0.707
010	-1	0
011	-0.707	-0.707
100	0	-1
101	0.707	-0.707
110	1	0
111	0.707	0.707

22. (Currently Amended) A method of demodulation using differential quadrature phase shift keying (DQPSK), the method comprising:

obtaining Pi/4 differential quadrature phase shift keying (DQPSK) symbols;

translating the Pi/4 DQPSK symbols into quadrature phase shift keying (QPSK) symbols utilizing the formula

$$S_{QPSK}(t) = (\text{real}(S(t)) + \text{imag}(S(t))) * (\text{real}(S(t-1)) - \text{imag}(S(t-1))),$$

where S(t) is a DQPSK symbol at time t, and $S_{QPSK}(t)$ is a QPSK symbol at time t; and

mapping the QPSK symbols to a pair of bits.